Enhancing the Sensitivity of the OPIS Balloon-Borne Telescope

Completed Technology Project (2014 - 2015)

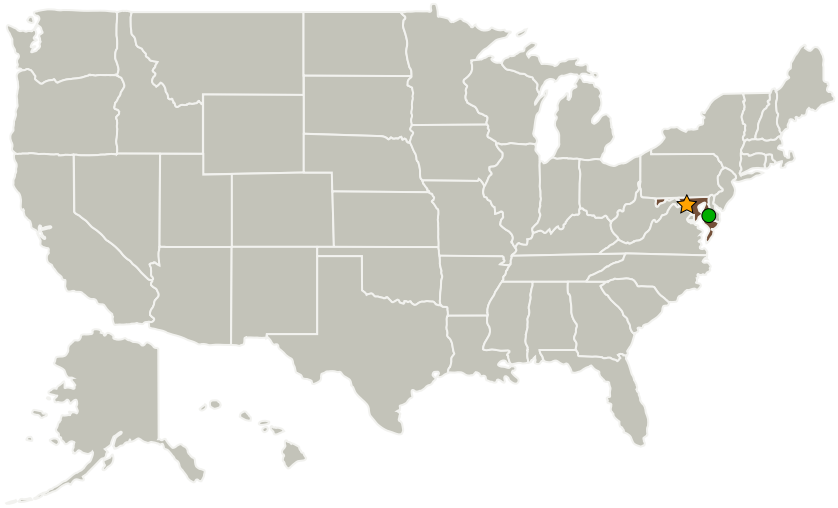
Project Introduction

We will spend the first half of the IRAD performance period designing the new OPIS infrastructure, and the second half procuring and assembling the mechanical architecture. The design process will be conducted in consultation with the WASP team (the WASP Program Manager, David Stuchlik at WFF, is a collaborator on this proposal) in order to avoid any mismatch between the OPIS design and the WASP gimbal and gondola design. The overall schedule will be organized with the goal of producing a working telescope structure that can immediately be integrated into a new WASP design after the flight season ends in October 2015.

Anticipated Benefits

The improvement in collecting area and efficiency for OPIS will provide a substantial benefit for future missions. We have leveraged the existing OPIS design and development for two separate 2014 ROSES proposals for follow-up balloon missions: the Transiting Exoplanet Explorer Balloon (TEEBall; P.I. Mandell) and the Eruptive Processes EXplorer (EPEX; P.I. Hurford). However, both of these mission proposals rely on time-resolved spectroscopy of variable phenomena (transiting exoplanets and Jovian lunar outgassing, respectively). The precision for each measurement and the targets available are therefore fundamentally limited by the collecting area of the telescope.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

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Organizations Performing Work	Role	Type	Location
Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Wallops Flight Facility(WFF)	Supporting Organization	NASA Facility	Wallops Island, Virginia

Primary U.S. Work Locations
Maryland

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Project Management

Program Manager:

Peter M Hughes

Project Managers:

Daniel A Mullinix
Brook Lakew

Principal Investigator:

Avram M Mandell

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes